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RECENT LITERATURE.

Catalogue of Fossil Reptilia and Batrachia (Amphibia) in the British Museum, Parts II., III., and IV.¹—Dr. Lydekker includes in Part II. the orders Ichthyopterygia and Sauropterygia; in Part III. the Testudinata; and in Part IV. the Placodontia, Theromora, and the Batrachia (Amphibia). Part I. included the Archosaurian series (Dinosauria, Crocodilia, and Ornithosauria) and the Squamata. The order of treatment has not been a systematic one either ascending or descending, possibly for reasons connected with the administration of the museum. Apart from this, we are disposed to find fault with some features of the system adopted which are more important. Thus the streptostylic series is quite heterogeneous, including the Rhynchocephalia, which must go with the Dinosauria in the Archosaurian line; and the Ichthyopterygia, which belong in the Synaptosaurian series. The Rhynchocephalia of Lydekker, however, include some types (as *Rhynchosauridæ*) which, from their single coössified postorbital bar, belong in the Synaptosauria.

In the treatment of the detail of the subject embraced by these catalogues we find the conscientiousness and painstaking characteristic of the author's work generally. The definitions are comprehensible, and the treatment of material judicious so far as appears. The settlement of questions of affinity and synonymy left uncertain by the older paleontologists is a service for which students everywhere will be grateful. This was especially needed among the Testudinata, which Dr. Lydekker found in great confusion, but which he has reduced to comparative order. We have to thank him for the abolition of the name *Colossochelys*, which cannot be distinguished from *Testudo*. Some of his genera are probably too comprehensive, as, *e. g.*, *Cimoliasaurus* (Sauropterygia), as the author himself suggests. *Trionyx* also probably includes more than one genus. Here is also the place to correct some statements of the author anent the Adocidæ. He remarks (p. 129): "The so-called Adocidæ of Cope are probably also referable to the Dermatemydidæ, the abortion of the ribs not being a character of family value. In the Cretaceous genus *Adocus* there are traces of vermiculation, which are more distinct in the Eocene genus *Agomphus*, and it has yet to be proved that the latter is really distinct from the

¹ Catalogue of the Fossil Reptilia and Amphibia in the British Museum. By Richard Lydekker. Part II., 1889; Part III., 1889; Part IV., 1890. London. Published by the trustees of the British Museum.

under-mentioned genus " (Trachyaspid). The fact is, that, as I showed in 1873 (Ann. Report U. S. Geol. Surv. Terr., 1872, p. 621), *Adocus* has an intergular plate, and a simple contact of the inferior pelvic bones with the plastron, and is allied to *Baëna*, belonging therefore to Lydekker's group *Amphichelydia*; and the absence of rib-heads is not included in my family definitions. Also *Agomphus* has no trace of vermiculation, while they are strong in *Trachyaspid*.

We refer to some points of nomenclature which arrest our attention. The author establishes a "new family," *Dermatemydidae*, and then remarks that the "so-called *Adocidae*" belong to it. Should this be the case, the proper proceeding would have been to have placed *Dermatemys* and allies in the *Adocidae*. The name *Anomodontia* is used instead of *Theromora* for the order first defined by the present critic under the latter name. Both Prof. Owen's first and last use of the former term are shown by Lydekker to have been for the division to which the later name *Dicynodontia* has been also applied. The latter name should be disused, both because it is a synonym and because some of its members are edentulous. Dr. Lydekker is probably correct in preferring the name *Theriodonta* to that of *Pelycosauria*, as they may refer to the same natural division, although the evidence is not all in yet. The name *Cotylosauria*, though proposed with an erroneous definition, is probably the proper one to apply to the subdivision *Pareiosauria*, while *Proganosauria* should be probably used in place of *Procolophonia*. The term *Labyrinthodontia* is resuscitated and used for the *Stegocephali*, although its original definition and etymology render it applicable to a limited subdivision only, whose actual boundaries are not yet known. In the division of the *Stegocephali* into orders or suborders considerable difference of opinion has developed. The obvious and simple division into *Ganocephali*, *Rhachitomi*, *Embolomeri*, and *Microsauri* is objected to by Lydekker, Zittel, and Fritsch, on grounds which seem to the present critic insufficient; and the classifications which it is proposed to substitute appear to stand on unsecure foundations. The value of the presence of complete intercentra in the cervical and dorsal regions in *Embolomeri* is said to be destroyed by the fact that *Archegosaurus* (*Ganocephali*) possesses the character in the *caudal* region; very inconsequent reasoning, it appears to us. Objection to the systematic importance of the segmented or rhachitomous structure is based on the fact that it is present in young *Labyrinthodons*, etc. This is certainly a new reason for discarding a character from systematic biology. When a character is shown to be inconstant in adults it should be relegated to the rear, but not before. That this may prove to be the case with the rhachitomous vertebra may

yet be discovered, but it has not been as yet; and it will not be soon observed with the embolomeros structure.

The author's adhesion to the law of priority in specific and generic names contributes much to the simplification of nomenclature. He is not as strict in the matter of family names. We cannot agree with him in changing a name as preoccupied, so long as it differs from the supposed preoccuper by one letter. This is not preoccupation.—C.

A. S. Woodward's Fossil Fishes.²—The fine collection of fossil fishes contained in the British Museum has been at last utilized as the basis of a systematic work. No better appointment could have been made for the accomplishment of this purpose than Mr. A. Smith Woodward, whose abilities as a systematic zoologist have been amply tested in this difficult field. The first part of the catalogue is devoted to the Elasmobranchii. Two hundred and ninety-six species are contained in the museum collection, which is only a part of those actually known. The value of the work is greatly enhanced by the reference list of all described species given under the head of each genus. Of the above species, twenty-four are included under the Ichthyotomi, of which fourteen are Pleuracanthidæ, and the remainder Cladodontidæ. The systematic position of the latter family is for the first time thus indicated. The doubts expressed as to the segmentation of the skull of *Didymodus*, expressed in this place by Mr. Woodward, have been since set at rest by an inspection of the specimens themselves, as he acknowledges in his report on American collections published in the *Geological Magazine* at a later date.

In the second part of the work Mr. Woodward takes in hand the question of the systematic relations of the fishes in general. He discards the division Ganoidei as unavailable, and adopts the subclasses Elasmobranchii, Holocephali, Dipnoi, and Teleostomi, as has been done in this country. He does not adopt the Agnatha, but accepts the superorder Ostracodermi³ Cope, which, according to some authors, represents the former in the Paleozoic formations, and places them as a fifth subclass of the Pisces. This is a great advance over previous views held in Europe, and it now remains to be seen whether the opinion that the Ostracophori are outside the class of fishes is to be sustained by further discovery or not.

² Catalogue of Fossil Fishes in the British Museum. By Arthur Smith Woodward. Part I., 1889; Part II., 1891. Published by the trustees of the British Museum.

³ This name was used by Gill in 1861 for the Scleroderm Plectognath fishes. I regret the apparent necessity for changing it, and propose the term Ostracophori to take its place.